

DETAILED ACTION

1. Applicants' response filed on 12/29/2010 amended independent claims 1 and 8, and dependent claims 22 and 27, and cancelled claims 20-21 and 26. Applicants' amendments in light of their arguments regarding unexpected results are persuasive and, therefore, the 35 USC 103 rejection over Miyake in view of Yagishita from the office action mailed on 11/8/2010 is withdrawn. For the reasons stated below, claims 1-2, 5-8, 18-19, 22, 24, 27 and 29 are in allowable condition.

Examiners Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

A) At the beginning of line 1 on page 1 of the specification:

Please add the phrase, "This application is a 371 of PCT/JP04/11375, filed August 6th, 2005.

B) At the end of the last line of claim 1, before the period ----".":

Please add the phrase, "wherein a content of said friction modifier (C) is 0.05 to 3.0 mass%, and a content of said sulfur-free metal detergent (D) is 0.01 to 1 mass% in terms of metal elements, based on a total amount of said lubricant (L)"

C) At the end of the last line of claim 8, before the period ----“.”-----::

Please add the phrase, “wherein a content of said friction modifier (C) is 0.05 to 3.0 mass%, and a content of said sulfur-free metal detergent (D) is 0.01 to 1 mass% in terms of metal elements, based on a total amount of said lubricant (L)”

D) Please cancel claims 23 and 28.

Examiner spoke with Mr. Jason Voigt on 1/14/2011 and he confirmed the changes that are represented by the examiner’s amendment above.

Allowable Subject Matter

3. The following is an examiner’s statement of reasons for allowance:

As evidenced by the prior art references of record, it is well known in the art for diamond-like carbon (DLC) contact surfaces to have lubricants comprising base oil and additives in between the contact surfaces. However, the DLC contact surfaces are limited in that one of the surfaces is limited to either an amorphous carbon coating or a hydrogenated amorphous carbon coating. Furthermore, the base oils of the instant application are limited to specific synthetic base oils having a kinematic viscosity measured at 100°C of 3.5 to 5 mm²/s, a total aromatic content of 0 to 2 mass%, and a total sulfur content of not higher than 0.002 mass%. The additives are also limited to a

Art Unit: 1771

narrow concentration of molybdenum dithiocarbamates, esters of aliphatic monocarboxylic acid friction modifiers and metal salicylates.

The combination of specific contact surfaces, base oil, and specific additives in applicants' compositions leads to superior friction torque reduction when compared to the closest prior art wherein the prior art formulations not comprising the specific combination discussed above.

Applicants have compared their compositions to a known set of compositions which represent the prior art. From the tables of the instant specification it is evident that applicants' example formulations perform much better in high temperature, low revolution environments and have better friction torque properties than known formulations. Also, applicants showed that unexpected results were only shown within a narrow criticality of ranges for the base oil and additives. This was persuasive in overcoming the Miyake/Yagishita combination wherein the base oil and additives as recited in the claims with overlapping ranges were disclosed, but applicants were able to narrow their ranges for these components and show the criticality of the ranges as claimed. These concentration ranges were not shown to be critical in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VISHAL VASISTH whose telephone number is (571)270-3716. The examiner can normally be reached on M-R 8:30a-5:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VVV

/Glenn A Caldarola/
Supervisory Patent Examiner, Art
Unit 1771